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LAWRENCE AND MAO: DECISIONMAKING  
METHODS CONSIDERED IN THEIR GUERRILLA  
STRATEGY

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CONSIDERED IN THEIR GUERRILLA STRATEGY

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## SUMMARY

Modern decision and game theory methodologies are described along with recent military research in human decisionmaking. The important guerrilla warfare strategies of T. F. Lawrence and Mao Tse-tung were analyzed and evaluated in relation to decision and game theory methodology. Results of the analysis showed a general lack of correspondence between the intuitive methods of Lawrence and Mao in developing guerrilla strategy and the analytic methods of game theory models; however, the initial steps of Lawrence and Mao in classifying the factors necessary for developing strategy did correspond with modern methods' initial steps. Further development of game theory models is necessary before the phenomena of military conflict can be used to derive useful strategies from them.

## INTRODUCTION TO DECISIONMAKING AND STRATEGY

The relationship between decisionmaking processes and strategy has not always been clear even to persons required to formulate a clear strategy based on some kind of analytical process. Unsystematic thinking probably has characterized political, military, economic, and other areas of mankind's interests throughout history. It is well-known that humans are incapable, without considerable training, of sustained logical thinking and, even then, fallacies and other errors occur with monotonous regularity.

In no sense, however, has mankind refrained from making decisions and formulating strategies merely because mankind is prone to err. Moreover, the importance of deciding and of employing a strategy, in the cases of opportunities or threats facing nations or individuals, forces mankind to decide matters and take action. Man has evaluated the outcome of his decisionmaking and strategy in terms of payoffs which were equal to, less than, or greater than the costs of implementing a particular strategy.

The most successful strategists, whether making decisions about political, military, or economic matters, have probably been aware of alternative actions, possible outcomes, and of the degree of risk involved during the decisionmaking process. The strategists of history have not always possessed the best aids to systematize their thinking; however, some strategists have been very successful while others have not been as fortunate.

One of the purposes of this essay is to set forth the essential methodology of modern decisionmaking processes which generate strategies. The second purpose is to examine briefly two eminent, guerrilla warfare strategists, T. E. Lawrence and Mao Tse-tung, in terms of the methodology presented. The final purpose is to evaluate Lawrence's and Mao's decisionmaking processes in the guerrilla area of military strategy.

### DECISIONMAKING METHODOLOGY

The essential relationship between the decisionmaking process and strategy is logical. Strategy should be derived from the decisionmaking employed. Insofar as the decisionmaking-strategy relationship is logical, it follows that the decisionmaking process itself must be systematic. A systematic decisionmaking process considers all relevant factors to a problem and the various ways the factors might combine to produce various outcomes. The discussion which follows presents the ways in which relevant factors involved in decisionmaking can be systematized or ordered and the relationship of an ordered array of factors to a decision rule or strategy. To become an excellent or highly reliable (a high probability that one will not fail to make the correct decision and choose the best strategy) decision maker and strategist requires much practice; nothing in the methodology which follows implies that decisionmaking logic precludes or neglects experience.

## Military Conflict

There are many types of conflict in which opposing and competitive interests are at issue.

"A military conflict is, by definition, a conflict of interest in which neither side has complete control over the variables determining the outcome, and in which the outcome is determined through a series of 'battles'."

Outcomes to battles may be scored as a "win" or a "loss." Not all outcomes are mutually exclusive since there may be, in military situations, degrees of winning or losing as, for example, in 50%, 75%, etc., destruction of target which cost the winning or losing side (or both) 25, 50%, etc., of its resources. Luce and Raiffa not only point out the concept of degrees of winning or losing but also that if a series of decisions must be made, then these decisions must be scheduled or timely and within the domain of choices possible. The decisions can produce one or more strategies but the domain of choice is not so simple since available choices depend on knowns and unknowns involved.

## Classes of Decisions

There are various ways of classifying decisionmaking whether in the political, economic, or military areas. One way is to categorize by both outcomes of actions or decisions and the proba-

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<sup>1</sup>R. Duncan Luce and Howard Raiffa. Games and Decisions: Introduction and Critical Survey (New York: Wiley and Sons, 1958), pp. 8-9.

bilities of the outcomes. The following list is based on the categorization of Luce and Raiffa<sup>2</sup>:

a. riskless cases. Here each action always has the same outcome and each outcome has a known probability. Decisions of this class, often called the "certainty" class, are those found usually in the area of linear programming. In this case, decisions can be made from analyzing the intersection of two or more straight lines on a graph. For example, if one has a hypotenuse of a right triangle intersecting the X and Y areas of a graph, one knows the outcome with certainty because if X increases, the points along the hypotenuse, or Y eventually go to zero. The same outcome always occurs.

b. Risky cases. Here each action has a set of possible outcomes and each outcome has a known probability of occurring. Decisions of this class are typical of games. Risky and riskless cases are similar in that each outcome for both cases have known probabilities. These two cases differ in that the action has a set of possible outcomes for the risky case while for the riskless case, each outcome is always the same. In games, each player knows all the courses of action and their outcomes and may prefer a pure or a mixed strategy. Furthermore, both players know each other's preferred outcomes and where the points of indifference are among outcomes. Some games are called zero-sum games because

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<sup>2</sup>Luce and Raiffa, pp.12-17.

what one player wins the other loses. Pure strategy occurs when a player always selects the same alternative while a mixed strategy occurs when he chooses different alternatives from game to game. The probabilities of outcomes are mathematical and can be calculated precisely.

c. Uncertain and risky cases. As in game theory, each course of action has a set of possible outcomes, but the probability of each outcome is unknown. Such cases are usually found in the scientific experiment where one or more outcomes of the research effort may occur. On the one hand, one may conclude that the experiment's outcome supports an hypothesis while the result may have been due to chance. On the other hand, one may conclude the outcome is false and be in error. The types of decisions made in science are aided by statistical statements of significance. Sometimes scientific research is called "games against nature" in which the scientist can expect that nature will choose the worst outcome for the scientist's efforts. The probabilities of outcomes are calculated empirically; one repeats the experiment several times and observes the frequency of outcome in relation to the number of repetitions made.

Similar to games and scientific experimentation, the uncertain and risky decisions have actions which result in a set of possible outcomes; however, some of the probabilities of outcome are known and some are unknown. International conflict is an area where decisionmaking is complicated by excluded outcomes as well as known



and unknown probabilities of occurrence of outcomes. For example, one action may lead to several outcomes, but some of these outcomes are prohibited from occurring. If an outcome has never occurred before, there is no way of making a reliable prediction as to the chance of its happening.

### Decisionmaking Rules

Luce and Raiffa<sup>3</sup> summarize four well-known theorists' (LaPlace, Wald, Hurwicz, and Savage) rules for decisionmaking under uncertainty and risk which is the most difficult class. LaPlace would make decisions based on the most frequent or average outcome--where the average value is largest. Wald would maximize one's utility--select the most desired outcome at least cost. Savage would choose the course of action which would minimize one's risk (or regret). Hurwicz would choose that action which involves the weighting of alternatives in terms of subjective probabilities of occurrence of outcomes. LaPlace, Savage, and Wald make decisions based on objective probabilities only, whether empirical or a priori. Hurwicz maintains that accumulated experience produces predictions about outcomes of courses of actions.

### Individual and Group Decisions

The form of organization<sup>4</sup> of a social group--military,

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<sup>3</sup>Luce and Raiffa, p.298.

<sup>4</sup>Miller, George A. Language and Communication. New York: McGraw-Hill, 1951.

industrial, educational, etc.,--determines the efficiency of output and morale of the group. In general, the more democratic the organization the greater the morale and the less efficient the output as compared with an authoritarian organization where morale is low but output is more efficient.

In the case of individual decisionmaking, courses of action are less related to one's social group's organizational arrangement and more related to subjective factors within the person's psyche.

In democratic groups, everyone is involved in decisionmaking for the purpose of taking action while in the authoritarian groups only the constituted authorities make decisions.

#### Experimental Studies of Decisionmaking

Recently, Blaisdell<sup>5</sup> reviewed the experimental evidence regarding human decision behavior. About 30 major factors emerged from the general research reviewed which influenced decisionmaking. Among the military studies surveyed, nine major areas appeared to influence decisionmaking as follows:

- Age of response required and stress
- Control of stress
- Organization type
- Status in organization

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<sup>5</sup>F. J. Blaisdell. Human Decision Behavior: A Critical Analysis of the Literature. Technical Paper, Research Department, International Electric Corporation, ITT, Paramus, New Jersey, 1962.

- Organization adaptability
- Organization size
- Number of channels and rates of input
- Human persistence
- Ability to calculate probabilities

### MISSIONS OF LAWRENCE AND MAO

Dickinson states that Lawrence's "...ultimate objective: 'unmistakably geographic', to occupy all Arabic-speaking lands in Asia."<sup>6</sup> This mission never materialized because Lawrence left Arabia once Damascus was seized. Liddell Hart<sup>7</sup> describes Lawrence's activities in Arabia as a series of guerrilla missions such as raids on the Hejaz railway to isolate the Turkish garrison at El Medina or mine laying missions on railroads or bridges. Lawrence operated more as a combination of intelligence officer and guerrilla to aid both British as well as Arabic causes against Turkey, who was allied with Germany. Hence, it appears that Dickinson's statement of Lawrence's mission is too broad. Liddell Hart's<sup>8</sup> description of Lawrence's missions seems to be more accurate and less unwieldy, especially if the many small raids and mine laying missions are considered, than Dickinson's view. For example, the Aqaba mission was to obtain tribesmen, raise a camel-force, bring them south, and seize Aqaba from the East using an Arab sherif.

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<sup>6</sup>Hillman Dickinson. "Master Guerrilla of Araby's Desert," Army, Vol. XVII (August, 1967), p.72.

<sup>7</sup>B. H. Liddell Hart. Colonel Lawrence, the Man Behind the Legend. New York: Dodd, Mead, 1934. pp.140-142.

<sup>8</sup>Liddell Hart. p.143.

Mao's missions were similar to Lawrence's in that they consist of guerrilla attacks within larger contexts. Mao's larger context was the collaboration with the Kuomintang to oust the Japanese initially and then warfare against the Kuomintang. Mao's missions were unlike Lawrence's in that Mao was trying to change the social order of China but he had to eject the Japanese first. Lawrence was not trying, unlike Mao, to change the social order of Arabia; however, Lawrence's mission also included the ejection of an invader.

It is important to see these similarities and differences because the courses of action or strategies chosen by Lawrence and Mao, can then be understood more easily because they both used somewhat similar means to different ends; however, Mao was using his native countrymen in his own nation while Lawrence was a foreigner using the nationals of that country (Arabia).

#### MIX OF FACTORS AND TYPE OF DECISIONMAKING

The factors included in the decisionmaking processes as well as the type of decisionmaking used were highly similar for both Lawrence and Mao. Elliot-Bateman<sup>9</sup> states that both Lawrence and Mao make a reconnaissance of both the physical and the "fourth dimensional factors" such as the "cultural, social, economic and

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<sup>9</sup>Michael Elliot-Bateman, "The Form of People's War, " The Army Quarterly and Defence Journal, Vol.C, No.1 (April 1970), pp.43-44.

political factors." Both sets of factors are considered equally important, according to Elliot-Bateman, by Lawrence and Mao.

Lawrence's set of factors "covers geographic divisions, language differences, religious groupings, tribal differences, economic factors and historical background."<sup>10</sup> Lawrence<sup>11</sup> took the natural or geographical features of Arabia and added to them the Sociological and political factors. This mix of factors produced a "social map", which was a mental arrangement in the minds of Feisal and Lawrence. It was from this type of map that Lawrence derived his strategy.

Mao also used the same mix of factors, according to Elliot-Bateman.<sup>12</sup> While neither strategist stated his mix of factors in identical ways, both are very similar in noting the interactions among the factors which produce social phenomena. Mao, however, presented a more objective mix of factors because he identified the factors and stated in advance their interrelations while Lawrence wrote after the fact. Lawrence's mix of factors was largely intuitive at the time courses of action were required, although he had an intimate knowledge of Arabia.

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<sup>10</sup> Elliot-Bateman, p.43.

<sup>11</sup> Lawrence, T. E. Seven Pillars of Wisdom. London: Jonathan Cape, 1935. pp.336-245.

<sup>12</sup> Elliot-Bateman, p.35.

### Type of Decisionmaking

Neither Lawrence nor Mao present the type of modern thinking or decisionmaking processes as was used even in World War II by General Kenney against the Japanese in the Battle of the Bismark Sea.<sup>13</sup> In this encounter, General Kenney's staff was able to present him with numerical estimates of the mix of factors from which General Kenney applied the military rule: "maximize your own security." General Kenney's problem was to decide where to concentrate his reconnaissance aircraft in order to sight the Japanese convoy, send out bombers to the sighted convoy, and maximize his probability of success. Given that the northern route was almost continually under cloud cover, while the southern route was clear, both the United States and Japanese commanders chose the northern route to maximize their security.

In terms of the theoretical concepts presented earlier, both sides followed the "minimize your risk" decision rule of Savage in the Battle of the Bismark Sea. Both Mao and Lawrence, however, appear to have slightly different decision rules. Mao was not as cognizant of cost of a particular course of action particularly in terms of manpower while the Arabs almost forbid Lawrence to lose a tribesman on any guerrilla mission. Therefore, Lawrence followed a decision rule of minimizing risk of failure and cost; this rule forced him into very small guerrilla missions. Mao, on

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<sup>13</sup>Luce and Raiffa, pp.64-65.

the other hand, tended to follow a rule of maximizing his gain at maximum risk at whatever cost. For example, he joined forces with the Nationalists to maximize the gain to the Communists of ridding China of the Japanese. This action involved great risk of failure of a coalition and for a while cost the Communists almost as much as they gained.

The class of decision used by Lawrence and Mao, in terms of the theoretical concepts presented earlier, was decisionmaking under uncertainty and risk which is characteristic of war and battles.

#### EVALUATION OF LAWRENCE AND MAO

The chief criticism of these two decisionmakers and their strategies is that it is difficult, if not impossible, to check their logic. Elliot-Bateman warns that

"... strategic theories that attempt to express themselves eventually at the tactical grass-roots level are usually doomed from conception. Similarly, the tactical ideas that have grown into sound strategy in one area of the world will fail in another if the strategy is first applied before the different tactical circumstances are discovered."<sup>14</sup>

#### MISSION OUTCOMES.

Whatever inconsistencies can be pointed out in their decision-making processes and strategies, it must be admitted that both Lawrence and Mao completed their general missions successfully.

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<sup>14</sup> Elliot-Bateman, p.38.

If one looks at individual guerrilla attacks, one finds that some applications of strategy to Lawrence's Palestine Mission<sup>15</sup> failed. For example, the raid on the bridge at Tell el Shehab gorge in the Yarmuk Valley failed because the raiding party lacked sufficient training. In other cases, some attacks, initially successful, later drew counterattacks on portions of the British Army and not the Arabs, whom the British were defending. Most specific missions were successful, however. As Dickinson points out, Lawrence's victory was an

"impressive tribute to the success of the strategy...many Turks on the Arab front never had a chance to fire a shot while, paradoxically, the Arabs were never on the defensive."<sup>16</sup>

Mao's general mission success is recent history. He defeated, with the aid of the Nationalists, the Japanese invaders, and later the Nationalists themselves, and became the ruler of Communist China. As with Lawrence, individual applications of his strategy of protracted guerrilla warfare from rural base areas did not always have successful mission outcomes. "The 6,000-mile 'Long March' to the barren northwest province of Shensi" is a case in point brought out by Schram.<sup>17</sup>

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<sup>15</sup>Liddell-Hart, p.202.

<sup>16</sup>Dickinson, p.72.

<sup>17</sup>Mao Tse-tung. Basic Tactics. Translated and with an Introduction by Stuart R. Schram. New York: Praeger, 1966. p.27.



While both Lawrence and Mao adopted a pure strategy of avoiding strength and attacking weakness, Mao also preferred a mixed strategy because he sought those battles in von Clausewitz's sense in which he could predict 100% success. Lawrence avoided the classical battle forms of von Clausewitz regardless of assurances of the degree of success. The best example is Lawrence's refusal to attack the Turkish stronghold at Medina when the fort was isolated by Lawrence's destruction of its supply lines.

#### GENERAL CONCLUSIONS

Portions of modern decision theory are applicable to military conflict provided the very simplifying assumptions presently used in decision theory can cover the broad range of phenomena that must be explained and predicted. Haywood<sup>18</sup> has argued, for example, that "military-decision doctrine" can be viewed as a "two-person zero-sum game theory." Luce and Raiffa<sup>19</sup> point out, however, that Haywood's game-theory model requires several ad hoc assumptions concerning the information about alternatives, probabilities of success, and that the loss of one side is an actual similar gain to the other side (zero-sum game), is known to both "players."

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<sup>18</sup>O. G. Haywood, Jr.. "Military Decision and Game Theory." Journal of the Operations Research Society of America. Vol. II, 1954. pp.365-385.

<sup>19</sup>Luce and Raiffa, p.64.

It is very difficult to derive Lawrence's and Mao's war strategies, whether pure or mixed, from game theory models presently in existence. The difficulty of not being able to do so is the fact that Mao has set forth a series of homilies to be read by simply trained peasants who will engage in guerrilla warfare and eventually join up with a conventional army. For example, Mao describes a mixed guerrilla strategy

"based on alertness, mobility, and attack...(and) adjusted to the enemy situation, the terrain, the existing lines of communication, the relative strength, the weather, and the situation of the people."<sup>20</sup>

The problem for a game decision theorist is to be able to quantify or estimate the factors that Mao identifies, form a matrix of the quantified factors, derive courses of action (strategies), based on all possible outcomes, and then calculate the known and estimated probabilities of these outcomes.

The first conclusion from this study is that both Mao and Lawrence do not measure up to the strict logic of modern decision theory because they did not go far enough. Both strategists reached the initial stages of decision theory's methods in that they insightfully identified and categorized most of the factors that must be known to make successful decisions. The remainder of the methodology was largely intuitive. For example, Lawrence's concepts came to him during the delirium of a severe illness in Arabia. Many of Mao's tactical concepts came from ancient sayings

of Sun Tzu such as "Sheng Tung, Chi Hsi" (Distraction in the East, Strike in the West).<sup>21</sup>

Further study is needed to develop the relationships between war strategies and modern decision theory and methodology. Recent research results need to be incorporated into modern decision theory.

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<sup>21</sup>Mao Tse-tung, p.25 (Translator's Note).

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